

Modular welding fixtures prove convenient, economical Drastic cut in weld-setup costs

Alloy Welding, Melrose Park, IL, is a 30-person fabrication job shop using the latest fabrication technology and equipment. The 35,000-sq-ft facility includes equipment for shearing, saw cutting, forming, machining, spotwelding, welding, and polishing. It also has computer-controlled lasers and CNC turret presses.

Many of Alloy's fabrications involve very-close-tolerance welding. Dedicated fixtures are frequently necessary for these weldments, especially where long runs are planned. Over time, the shop has amassed an array of welding fixtures.

As President Jack Troccoli says, "Simply storing and tracking these fixtures was eating our lunch!" Despite this problem, Troccoli was reluctant to make major operational changes.

"I thought our methods and equipment were adequate," Troccoli says.

However, after seeing the Demmeler modular fixturing system in action, Troccoli realized this was much more than just another welding table. Not only could the system address his fixture-storage concerns, it could ease the building of fixtures, and it could easily integrate into the production system.

Two purchases

Alloy Welding purchased a Demmeler starter package including a full set of modular-fixturing elements and a 2400mm x 1200mm (4 ft x 8 ft) 3D welding table. Adding the Demmeler System to the welding/fabrication area proved to be a good investment. "Our Demmeler system has easily paid for itself ten times over," Troccoli says.

In May 1997, Troccoli ordered his second table (40" x 40").

One use for a Demmeler fixture is the Euro-Frame for Bell & Howell. This unit is part of a mail-sorting machine exported to Germany. The job requires 50 pieces and a welding tolerance of ± 0.030 ". The subassembly on the left side of the table, which resembles a pile of pickup sticks, is welded to the top of the frame in a second setup. Here a previously welded component serves as a template to build the modular fixture.



Building a second setup fixture uses previously welded part as a template.

Heavy ribs

The base unit of the Demmeler modular fixturing system is welded and



Welder Naj Kahn loads parts into Demmeler modular fixture for a mail-sorting machine.

heavily ribbed. A 3D work-table provides a sturdy platform for mounting a variety of standard components and other accessories. These tables are made of high-tensile-strength steel to ensure stability and flatness to within 0.0004 ipf. Several table sizes are available, and they may be used individually or joined together for larger parts. Each worktable has a grid pattern of 1.1" mounting holes, spaced 3.9" apart across the face and four sides of the table. These holes are located ± 0.001 " hole-to-hole and ± 0.002 " overall. In addition to the holes, several elements have 1.1" wide slots and bores that assist in positioning the components.

Special positioning and clamping bolts attach the fixturing components to the holes and slots. The hardened bolts precisely position and securely clamp the individual elements. Each bolt provides up to 3 tons of clamping force. In use, the bolt is inserted through the fixturing element into the 3D worktable. An integral O-ring prevents the bolt from turning while it is being tightened.

The operator turns the knurled head to extend locking balls into a chamfered recess at the bottom of each mounting hole to center the shank. He then uses a hex wrench to securely tighten each bolt.

The Demmeler system also offers a selection of fast-acting clamps. The patented threaded clamps each have a compensating device that applies clamping pressure perpendicular to the clamped surface. As the clamp is tightened, a clamping tube deflects and locks in the bore. The compensating device neutralizes the effects of the deflection.

Many angles, risers, stops, and related fixturing devices are also available with the Demmeler system. These elements offer the designer or welder a wealth of possibilities to suit almost any workpiece. Many times, the standard components alone can build a fixture, but custom elements using the system bores for location can be fabricated to suit special workpiece conditions.

Photographic rebuilding

The Demmeler system presents features and capabilities not found with other fixturing methods, according to Bluco Corp, the supplier. From prototypes, repair parts, or new product designs-through low- to medium-volume production jobs-the system allows the right fixturing for each job to be built quickly and easily. Then, as each job is completed, the fixture is taken apart and the parts reused to build the next fixture. Often, fixtures are built using CAD drawings or rebuilt using photos of original fixtures as guides. These techniques can drastically cut the fixturing costs in any shop. Bluco Corp,

BLUCO



MODULAR FIXTURING FOR WELDING

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